

Situation Awareness in Degraded Environments 2018

Tuesday - Wednesday 17 - 18 April 2018

Conference Sessions At A Glance

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1: Displays and Human Performance I
 2: Displays and Human Performance II
 3: Systems and Processing I
 4: Phenomenology and Sensing
 Posters-Tuesday
 5: Systems and Processing II
 6: Displays and Human Performance III
 7: GPS Denied Environments
 8: MMW and DVE Phenomenology and Sensing: Joint Session with conferences 10642 and 10634

Important Dates

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Abstract Due:
9 October 2017

Author Notification:
11 December 2017
Notifications will be sent no later than 12/15/17

Manuscript Due Date:
21 March 2018

Conference Committee

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Conference Chairs

[John \(Jack\) N. Sanders-Reed](#), The Boeing Co. (United States)
[Jarvis \(Trev\) J. Arthur](#), NASA Langley Research Ctr. (United States)

Program Committee

Brendan W. Blanton, The Boeing Co. (United States)
[Michael P. Browne](#), SA Photonics (United States)
[Daniel D. Desjardins](#), Air Force Research Lab. (United States)
[Gary W. Jones](#), NanoQuantum Sciences, Inc. (United States)

Program Committee continued...

[Shanalyn A. Kemme](#), Sandia National Labs. (United States)
[Jim E. Melzer](#), Thales Visionix, Inc. (United States)
 Thomas R. Muensterer, HENSOLDT Sensors GmbH (Germany)
[Niklas Peinecke](#), Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany)
[Kalluri R. Sarma](#), Honeywell Technology (United States)
[Carlo L. Tiana](#), Rockwell Collins, Inc. (United States)

TUESDAY 17 APRIL

[Show All Abstracts](#)


Session 1: Displays and Human Performance I

Tuesday 17 April 2018
 8:00 AM - 10:00 AM
 Location: Ballroom Level, Sun 4

Session Chairs: [Michael P. Browne](#), SA Photonics, Inc. (United States) ; [Jim E. Melzer](#), Thales Visionix, Inc. (United States)


Determination of 255 just noticeable color gray level differences for improved color palette

Paper 10642-1
 Time: 8:00 AM - 8:20 AM
 Author(s): Daniel D. Desjardins, Patrick Gardner, Western Carolina Univ. (United States); James C. Byrd, Aeronautical Systems Ctr./Displays Branch (retired) (United States)

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HMD daylight symbology: color discrimination modeling

Paper 10642-2
 Time: 8:20 AM - 8:40 AM
 Author(s): Thomas H. Harding, U.S. Army Aeromedical Research Lab. (United States); Jeffery K. Hovis, Univ. of Waterloo (Canada); Clarence E. Rash, Oak Ridge Institute for Science and Education (United States); Michael K. Smolek, Morris R. Lattimore, U.S. Army Aeromedical Research Lab. (United States)

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Modeling the effect of macular pigment enhancement on vision in degraded visual environments (DVE)

Paper 10642-3
 Time: 8:40 AM - 9:00 AM
 Author(s): Kevin J. O'Brien, U.S. Army Aeromedical Research Lab. (United States), Oak Ridge Institute for Science and Education (United States); Leonard A. Temme, U.S. Army Aeromedical Research Lab. (United States); Paul M. St. Onge, U.S. Army Aeromedical Research Lab. (United States), Laulima Government Solutions, LLC (United States)


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Review of sensor-to-eye latency effects in degraded visual environment mitigations

Paper 10642-4

Time: 9:00 AM - 9:20 AM


Author(s): Thomas Schnell, The Univ. of Iowa (United States); Thomas R. Münsterer, HENSOLDT Sensors GmbH (Germany)

[Add To My Schedule](#) **Color and impact to HMD design**

Paper 10642-5

Time: 9:20 AM - 9:40 AM


Author(s): Bobby D. Foote, Rockwell Collins, Inc. (United States); Mitchell Hoffmann, Rockwell Collins (United States)

[Add To My Schedule](#) **Predicting depth discrimination performance under hyperstereoscopic display conditions**

Paper 10642-6

Time: 9:40 AM - 10:00 AM

Author(s): Charles J. Lloyd, Visual Performance, LLC (United States); Marc Winterbottom, Eleanor O'Keefe, Tommy Bullock, USAF School of Aerospace Med., Operational Based Vision Assessment Laboratory (United States)

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Coffee Break and Dedicated Exhibition Time 10:00 AM - 11:00 AM

**Session 2:
Displays and Human Performance II**

Tuesday 17 April 2018

11:00 AM - 12:00 PM



Location: Ballroom Level, Sun 4

Session Chair: [John \(Jack\) N. Sanders-Reed](#), The Boeing Co. (United States)**AFRL alternative night/day imaging technologies (ANIT) program (Conference Presentation) (Invited Paper)**

Paper 10642-7

Time: 11:00 AM - 11:40 AM


Author(s): Darrel G. Hopper, Air Force Research Lab. (United States)

[Add To My Schedule](#) **Visibility of color symbology in head-up and head-mounted displays in daylight environments** 

Paper 10642-8

Time: 11:40 AM - 12:00 PM

Author(s): Kirk Moffitt, Human Factors Consultant (United States); Michael P. Browne, SA Photonics, Inc. (United States)

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Lunch/Exhibition Break 12:00 PM - 1:30 PM

**Session 3:
Systems and Processing I**

Tuesday 17 April 2018

1:30 PM - 3:10 PM


Location: Ballroom Level, Sun 4

Session Chairs: [Niklas Peinecke](#), Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany) ; [Daniel D. Desjardins](#), Air Force Research Lab. (United States)**360-degree top view inside a helmet mounted display providing obstacle awareness for helicopter operations**

Paper 10642-9

Time: 1:30 PM - 1:50 PM


Author(s): Lars Ebrecht, Johannes M. Ernst, Hans-Ullrich Döhler, Sven Schmerwitz, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany)

[Add To My Schedule](#) **Synthetic vision on a head-worn display supporting helicopter offshore operations**

Paper 10642-10

Time: 1:50 PM - 2:10 PM


Author(s): Johannes M. Ernst, Lars Ebrecht, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany); Stefan Erdmann, Technische Univ. Braunschweig (Germany)

[Add To My Schedule](#) **Real-time sonic boom prediction with flight guidance**

Paper 10642-12

Time: 2:10 PM - 2:30 PM

Author(s): Laura M. Smith-Velazquez, Rockwell Collins, Inc. (United States); Erik Theunissen, Informatie Systemen Delft Leiderdorp (Netherlands)


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Evaluating synthetic vision displays for enhanced airplane state awareness

Paper 10642-13

Time: 2:30 PM - 2:50 PM

Author(s): Lawrence J. Prinzel, Kyle K. E. Ellis, Jarvis J. Arthur, Daniel K. Kiggins, Stephanie N. Nicholas, Renee C. Lake, Kathryn Ballard, NASA Langley Research Ctr. (United States)

[Add To My Schedule](#) **Vision systems for rotorcraft: regulatory and technology update****(Canceled)**

Paper 10642-14

Time: 2:50 PM - 3:10 PM

Author(s):

Coffee Break 3:10 PM - 3:40 PM

**Session 4:
Phenomenology and Sensing**

Tuesday 17 April 2018

3:40 PM - 5:00 PM


Location: Ballroom Level, Sun 4

Session Chairs: [Gary W. Jones](#), NanoQuantum Sciences, Inc. (United States) ; [Shanalyn A. Kemme](#), Sandia National Labs. (United States)**Passive EO imaging sensor assessment methodology**

Paper 10642-15

Time: 3:40 PM - 4:00 PM


Author(s): Rhys Jones, Defence Science and Technology Lab. (United Kingdom); Graham Passey, Leonardo MW Ltd. UK (United Kingdom)

[Add To My Schedule](#) **Advanced low-SWAP lidar imager for degraded visual environments**

Paper 10642-16

Time: 4:00 PM - 4:20 PM


Author(s): Jason Seely, James T. Murray, Paul Eason, Jeffrey Plath, Bill Ryder, Neil VanLieu, Arete Associates (United States)

[Add To My Schedule](#) **Ongoing work and improvements at the Sandia Fog Facility (Conference Presentation)**

Paper 10642-17

Time: 4:20 PM - 4:40 PM


Author(s): Jeremy B. Wright, John D. van der Laan, Andres Sanchez, Sandia National Labs. (United States)

[Add To My Schedule](#) **NIAG DVE flight test results of LiDAR based DVE support systems**

Paper 10642-18

Time: 4:40 PM - 5:00 PM

Author(s): Thomas R. Münsterer, HENSOLDT Sensors GmbH (Germany); Bernhard Singer, HENSOLDT Optronics GmbH (Germany); Michael Zimmermann, Martin Gestwa, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany)

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**Session PS1:
Posters-Tuesday**

Tuesday 17 April 2018

6:00 PM - 8:00 PM

Location: Ballroom Level, Osceola Ballroom C

All symposium attendees – You are invited to attend the evening Interactive Poster Session to view the high-quality posters and engage the authors in discussion. Enjoy light refreshments while networking with colleagues in your field. Authors may set up their posters between 10:00 am and 5:00 pm the day of their poster session. Special daytime previewing prior to the session from 10:00 am to 5:00 pm. Attendees are required to wear their conference registration badges to access the Osceola Ballroom to view the posters.


Posters that are not set up by the 5:00 pm cut-off time will be considered no-shows, and their manuscripts may not be published. Poster authors should accompany their posters from 6:00 to 8:00 pm to answer questions from attendees. All posters and other materials must be removed no later than 8:30 pm. Any posters or materials left behind at the close of the poster session will be considered unwanted and will be discarded. SPIE assumes no responsibility for posters left up after the end of each poster session.

Improving AVHRR-based NDVI data using a statistical technique for global climate studies

Paper 10642-19

Time: 6:00 PM - 8:00 PM


Author(s): Mohammed Z. Rahman, LaGuardia Community College (United States); Leonid Roytman, LaGuardia Community College (United States); Abdel Hamid Kadik, NOAA-CREST (United States), The City College of New York (United States); Dilara A. Rosy, Univ. of Dhaka (Bangladesh)

[Add To My Schedule](#) **Compact vibrating magnetic sources for penetrating sensing and low-bitrate communication**

Paper 10642-34

Time: 6:00 PM - 8:00 PM

Author(s): Dryver R. Huston, Daniel Orfeo, Robert Farrell, Dylan Burns, The Univ. of Vermont (United States); Guoan Wang, Univ. of South Carolina (United States); Tian Xia, The Univ. of Vermont (United States)

[Add To My Schedule](#) **WEDNESDAY 18 APRIL**[Show All Abstracts](#)

Session 5: Systems and Processing II

Wednesday 18 April 2018

8:20 AM - 9:20 AM

Location: Ballroom Level, Sun 4


Session Chair: Thomas R. Münsterer, HENSOLDT Sensors GmbH (Germany)

Integrating legacy ESVS displays in the Unity game engine

Paper 10642-20

Time: 8:20 AM - 8:40 AM


Author(s): Niklas Peinecke, Johannes M. Ernst, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany)

[Add To My Schedule](#) **Team-centric motion planning in unfamiliar environments (Conference Presentation)**

Paper 10642-22

Time: 8:40 AM - 9:00 AM


Author(s): Cory Hayes, Matthew Marge, Claire Bonial, Clare Voss, Susan G. Hill, U.S. Army Research Lab. (United States)

[Add To My Schedule](#) **Rotorcraft pinnacle landing situational awareness system**

Paper 10642-23

Time: 9:00 AM - 9:20 AM

Author(s): Brendan W. Blanton, Robert C. Allen, Katherine S. Gresko, Eric H. Lieberman, Deanna N. Dibernardi, The Boeing Co. (United States)

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Session 6: Displays and Human Performance III

Wednesday 18 April 2018

9:20 AM - 10:00 AM


Location: Ballroom Level, Sun 4

Session Chair: [Niklas Peinecke](#), Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany)**Feeling a little blue: problems with the symbol color blue for see-through displays and an alternative color solution**

Paper 10642-24

Time: 9:20 AM - 9:40 AM

Author(s): Kirk Moffitt, Human Factors Consultant (United States); Michael P. Browne, SA Photonics, Inc. (United States)

[Add To My Schedule](#) **DEVS: providing dismounted 24/7 DVE capability and enabling the digital battlefield**

Paper 10642-25

Time: 9:40 AM - 10:00 AM

Author(s): Joseph E. Straub, Sage Technologies Ltd. (United States)

[Add To My Schedule](#) **Coffee Break and Dedicated Exhibition Time 10:00 AM - 11:00 AM**

Session 7: GPS Denied Environments

Wednesday 18 April 2018

11:00 AM - 11:40 AM

Location: Ballroom Level, Sun 4


Session Chair: Brendan W. Blanton, The Boeing Co. (United States)

Relative visual localization (RVL) for UAV navigation

Paper 10642-28

Time: 11:00 AM - 11:20 AM


Author(s): Andy Couturier, Moulay A. Akhloufi, Univ. de Moncton (Canada)

[Add To My Schedule](#) **Location and head orientation tracking in GPS-denied environments**

Paper 10642-26

Time: 11:20 AM - 11:40 AM

Author(s): James E. Melzer, Ashutosh Morde, Thales Visionix, Inc. (United States)

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Lunch/Exhibition Break 11:40 AM - 1:30 PM

**Session 8:
MMW and DVE Phenomenology and Sensing: Joint Session with conferences
10642 and 10634**

Wednesday 18 April 2018

1:30 PM - 4:40 PM


Location: Ballroom Level, Sun 4

Session Chairs: [Jarvis J. Arthur](#), NASA Langley Research Ctr. (United States) ; [David A. Wikner](#), U.S. Army Research Lab. (United States)**Visualization requirements for DVE systems**

Paper 10642-29

Time: 1:30 PM - 1:50 PM


Author(s): Jack Cross, Sierra Nevada Corp. (United States)

[Add To My Schedule](#) **DVE system capability classes**

Paper 10642-30

Time: 1:50 PM - 2:10 PM


Author(s): Jack Cross, Sierra Nevada Corp. (United States)

[Add To My Schedule](#) **Visibility in degraded visual environments (DVE)**

Paper 10642-31

Time: 2:10 PM - 2:30 PM


Author(s): John (Jack) N. Sanders-Reed, Stephen J. Fenley, The Boeing Co. (United States)

[Add To My Schedule](#) **Advanced radar for autonomous vehicles and degraded visual environments**

Paper 10634-1

Time: 2:30 PM - 2:50 PM

Author(s): Mike Gleaves, Peter Ludlow, Steven Christie, Arralis Ltd. (Ireland); Peng Liu, Arralis Ltd (Ireland)

[Add To My Schedule](#) **A novel wire recognition algorithm for millimeter-wave radar video imagery
(Canceled)**

Paper 10642-32

Time: 2:50 PM - 3:10 PM

Author(s):

Coffee Break 3:10 PM - 3:40 PM

**235 GHz coded aperture subreflector array for imaging radar
(Canceled)**

Paper 10634-2

Time: 3:40 PM - 4:00 PM


Author(s):

High fill factor RF aperture arrays for improved passive, real-time millimeter wave imaging

Paper 10642-33

Time: 4:00 PM - 4:20 PM

Author(s): Thomas E. Dillon, Christopher Schuetz, Phase Sensitive Innovations, Inc. (United States); Daniel Mackrides, Phase Sensitive Innovations (United States); Andrew Wright, Phase Sensitive Innovations, Inc. (United States); Kevin Shreve, Charles Harrity, Phase Sensitive Innovations (United States); Steven Kocazik, EM Photonics, Inc. (United States); Shouyuan Shi, Peng Yao, Phase Sensitive Innovations (United States); Dennis Prather, Univ. of Delaware (United States)

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Calibrated radar cross section measurements of various helicopter landing zone hazards at 94 GHz

Paper 10634-3

Time: 4:20 PM - 4:40 PM

Author(s): David A. Wikner, Jerry L. Silvius, Robert L. Bender, U.S. Army Research Lab. (United States)

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